Our Partnership

Loma Linda University Neurosurgery Center for Research, Training, & Education (Laboratories) and Biochemistry Department
Wolff Kirsch, M.D. Sofia Bhaskerrao, M.D.
James Larsen, M.D. William Britt, Ph.D.
Floyd Petersen, M.P.H. Daniel Kido, M.D.
Andre Obenaus, Ph.D. Barbara Holshouser Ph.D.
Lennart Anton, M.B.A. Cindy Dickson

Bio Ergonomics, Inc. (Minneapolis)
Dan Collins, Ph.D.
Flow Cytometry
Ex Vivo Blood

MRI Institute for Biomedical Research (Detroit)
Mark Haacke, Ph.D.
Brain Imaging

Translational Genomics Research Institute Phoenix, Arizona
Keith Coon Ph.D.
Dietrich Stefan Ph.D.

IRP-2 "Knockout" Mice Entry
IRP-2 Knockout Mice
Quantitative Cytochemistry
Molecular Biology
Radiobiology
Confocal Microscopy
MRI – Iron Quantitation

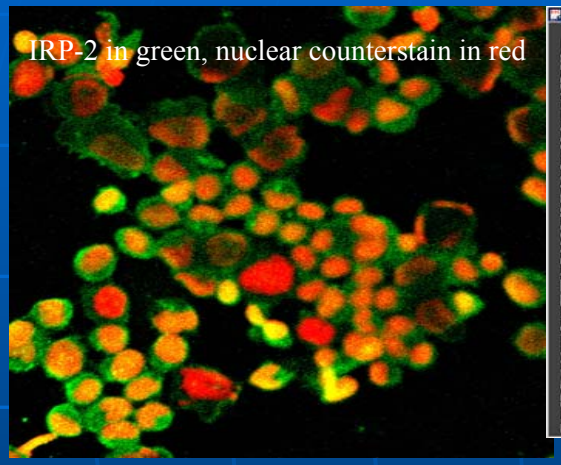
Human Subject Entry
LLU Internal Medicine and Neurosurgery
Neurological Assessment
LLU Psychiatry (Neuropsychology)
LLU Neuroradiology Dept.
LLU Pathology

Consultants
Ronald Petersen M.D. (Mayo Clinic)
Rodney Levine M.D. (NIH)
Tracey Rouault Ph.D. (NIH)

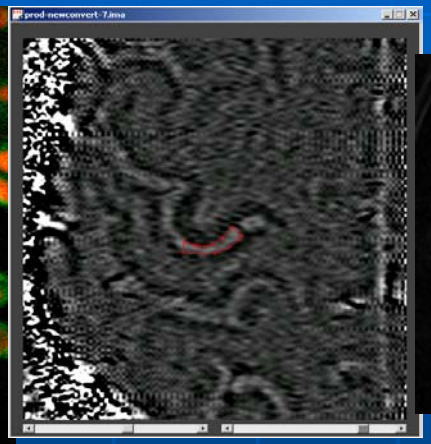
Data Storage and Collation
Floyd Petersen, MPH
Nona Grove, B.S.

Our Study

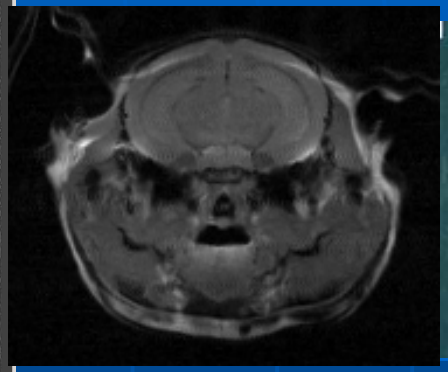
Hypothesis: Following the dementing clinical course of a cohort of mildly cognitively impaired (MCI) subjects will reflect iron regulatory and "oxidative stress" anomalies detectable in their circulating peripheral blood leukocytes and in the brain by special phase MR imaging (SWI). A genetically engineered mouse ("knockout Ireb-2 gene") that accumulates brain iron and manifests a neurodegenerative disease is used for calibrating SWI images.



AD Patient Lymphocytes



Special Phase MR imaging



T2 Mouse Brain Image

Mouse Brain Microdissection

Human				Murine
Over 1,000 elderly subjects screened over past 22 months	→ 50 MCI Subjects	→ 4 AD	SWI Blood Test Repeat CDR's	Knockout Colony Established PCR Genotyping Brain iron assay – Total Fe, Non-Heme, Loosely bound Fe SWI Imaging Protocol 11.7 T
	→ 24 Controls	→ 1 AD		